

# MODAPS + VIIRS Land SIPS Capability and Planning

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# Sources of Uncertainty in SIPS Planning

- Access to the Center for system administrators
- Approvals for IT purchases at GSFC slower than expected
- Impact of Covid-19 on delivery dates of hardware
- Upper limit on delivery to and ingest at LP DAAC
- Timeline for SIPS Protocol change
- Delivery dates and changes to MODIS and VIIRS PGEs

Timeline based on current system performance (SIPS and DAACs) and delivery schedules

J1/N20

VIIRS C2

SNPP

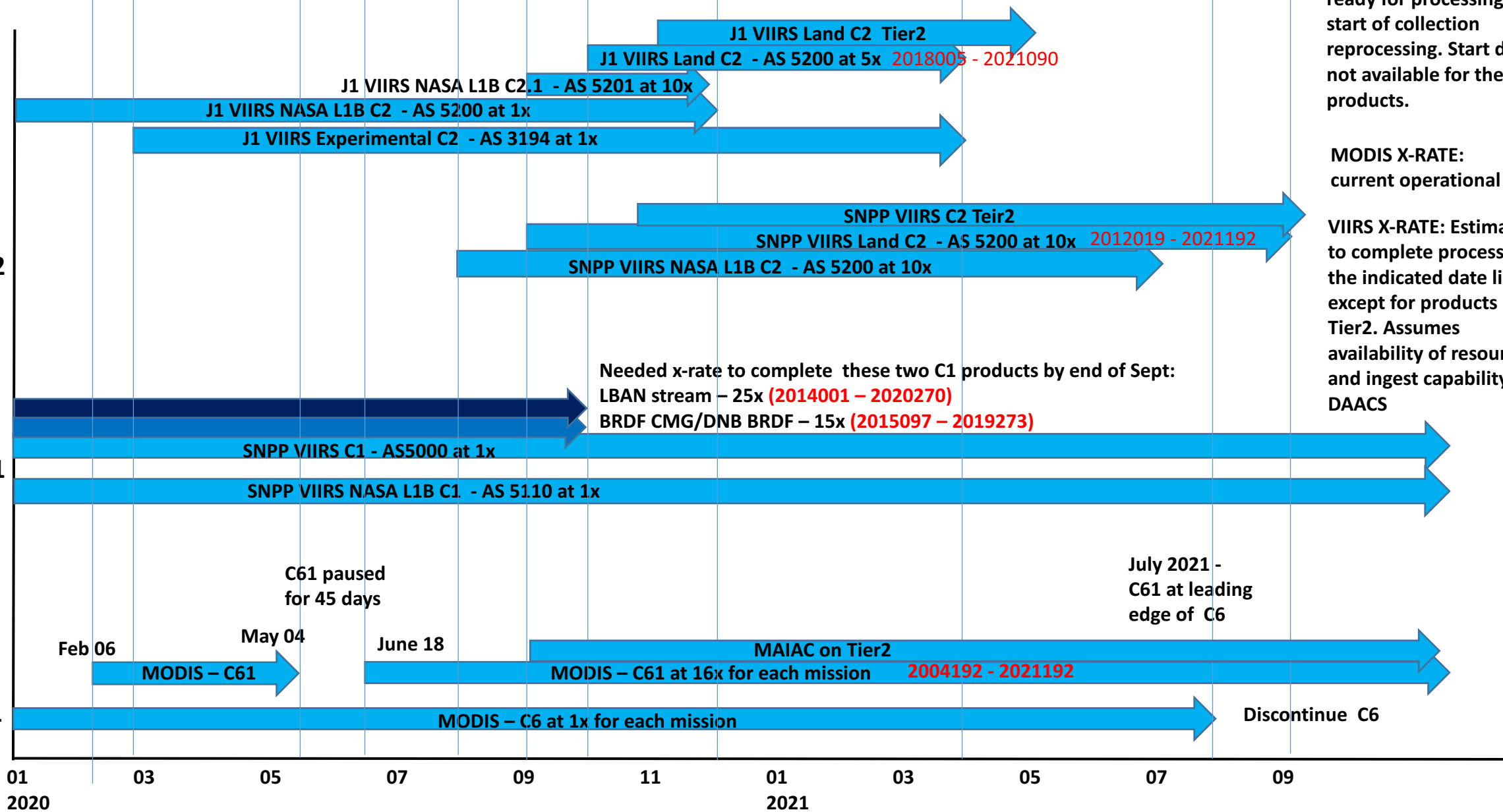
VIIRS C2

SNPP

VIIRS C1

MODIS

C6/C61



Tier2: Products not ready for processing at start of collection reprocessing. Start date not available for these products.

MODIS X-RATE: current operational

VIIRS X-RATE: Estimated to complete processing at the indicated date line except for products in Tier2. Assumes availability of resource and ingest capability at DAACS

LP DAAC Ingest: Current and Upper Bound			
	Volume (GB/Data day)		
Current sustainable rate	Forward	Reprocess	Total
MODIS C6 Forward and C6.1 16X Reprocess	270	3,690	3,960
VIIRS SNPP C1 Forward and C2 10X Reprocess	192	1,900	2,092
VIIRS J1 C2.1 Forward and C2.1 5X Reprocess	190	950	1,140
Total	652	6,540	7,192
Upper bound SIPS delivery to LP	Forward	Reprocess	Total
MODIS C6 Forward and C6.1 32X Reprocess	270	7,380	7,650
VIIRS SNPP C1 Forward and C2 20X Reprocess	192	3,800	3,992
VIIRS J1 C2.1 Forward and C2.1 10X Reprocess	190	1,900	2,090
Total	652	13,080	13,732

# Product delivery protocol changes

**For most of the mission:** FTP was used in the SIPS protocol and limited to IP addresses of DAACs, SIPS and EDOS

**Then FTP was disallowed:** Replaced by SFTP (Secure file transfer protocol based on SSH) limited to IP addresses of DAACs and SIPS outside GFSC boundary. FTP allowed for system transfers within GSFC.

**Now SFTP will be disallowed and replaced by HTTPS:** MODAPS has developed a new protocol (API and reference implementation) for use across EOSDIS for data transfer. Initial testing with GES DISC. The new protocol will enable better performance for data delivery but is 12-24 months before it will be in place at most DAACs.

# Changes to current PDR server

- **PDR01** currently handles all data ingest and export for MODAPS between EDOS, Ocean SIPS, Atmosphere SIPS, LP DAAC and NSIDC DAAC. Current delivery rate of 8TB/day to LP DAAC won't be sustainable with other data flow, e.g. Atmosphere SIPS product deliveries. PDR01 is currently is at 90% cpu utilized as a floor.
- Add two more PDR servers, **PDR03 and PDR04**, for VIIRS and MODIS C6.1 reprocessing product delivery to LP DAAC. PDR01 will retain all other ingest and delivery functions. **Timeline 1-2 months.**
- Replace SIPS protocol and transition all delivery except EDOS to new https protocol with significant improvement in performance. **Timeline 12-24 months.**

# Changes to increase processing rates

- Add 40 R7425 (64 cores, 256GB ), 20 R740 (12 cores, 128GB) 45 days
  - Getting system administrators on Center during Stage 4
- Add 100 R7425 (64 cores, 256GB ), 100 R740 (12 cores, 128GB) 120 days
  - Delivery of hardware (switches and servers), excessing hardware to free up floor space and access to the Center during Stage 4